

“Mango: Opportunities and Challenges in the 21st Century”

Fruit flies harmful to mango in Haiti: host plant range and population fluctuations

Presentation of :

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Student PHD



**Oral presentation in the 10th
*International Mango Symposium***

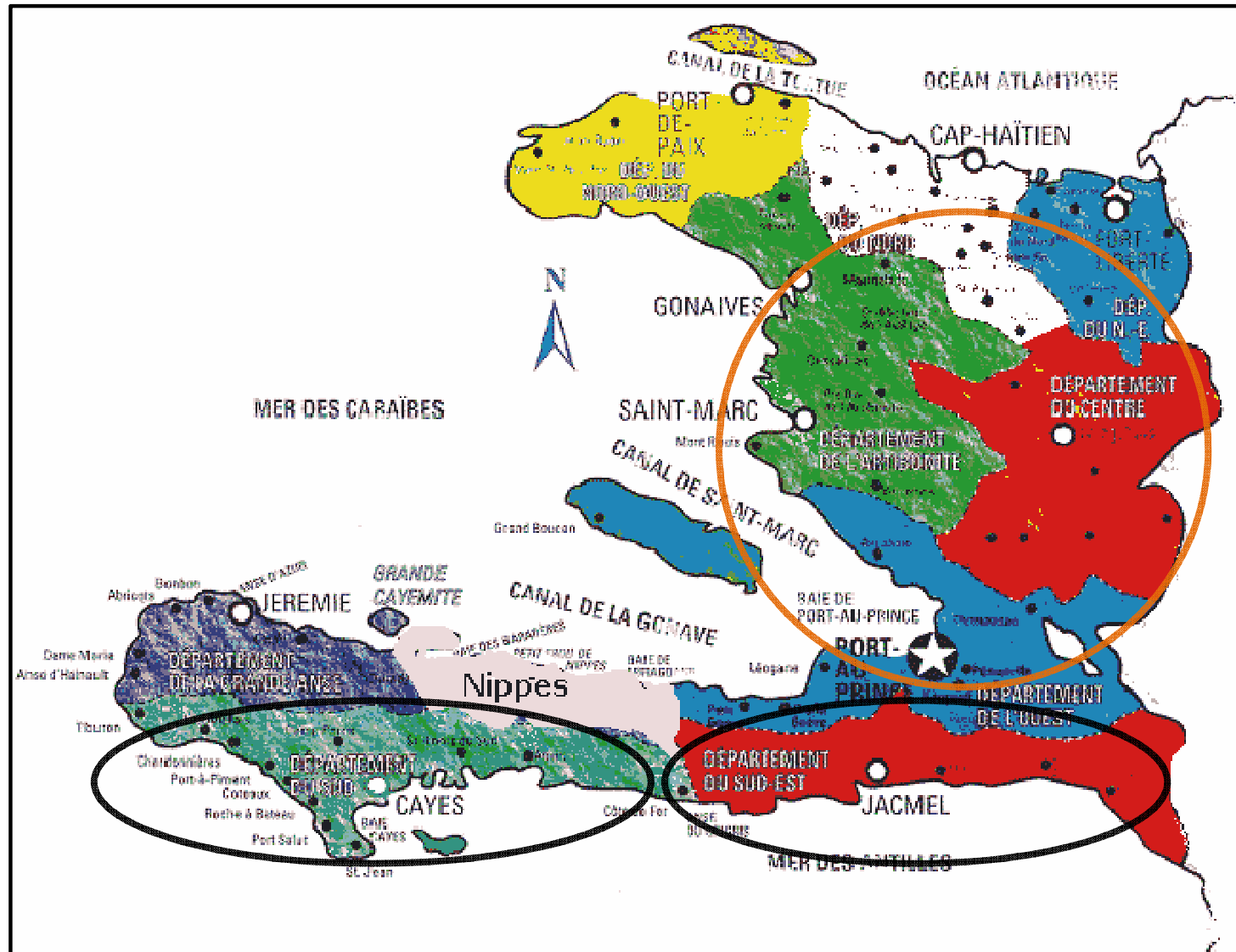
Rep. Dominican, June 2013



Global context of mangoes in Haiti



MANGO PRODUCTION AREAS AND STUDY AREA

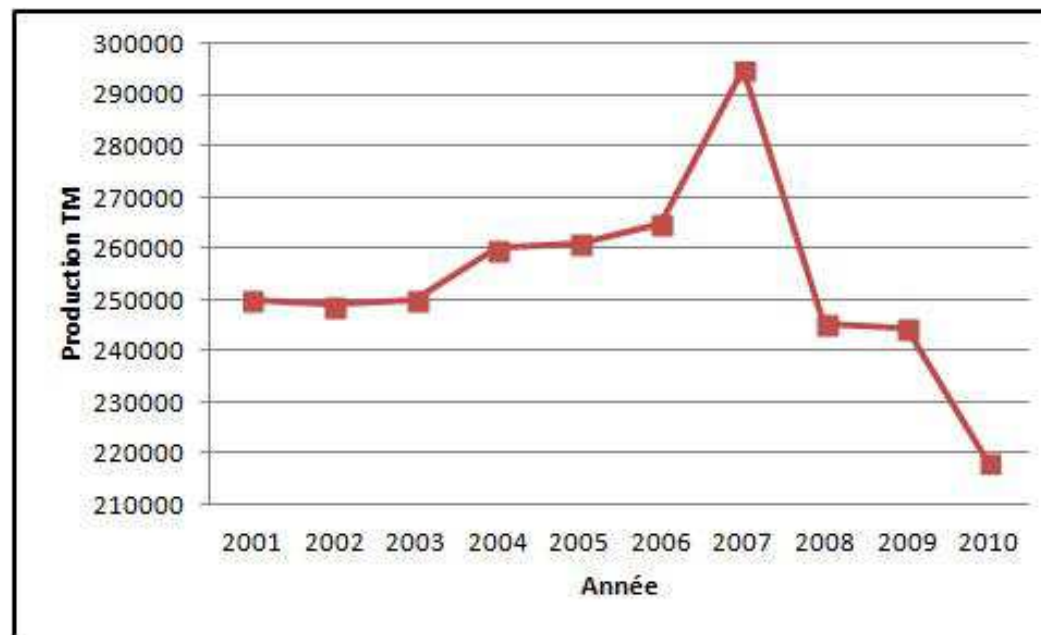




Varieties of Haitian
mangoes exported:
Francisque, Blanc & Corne

MANGO EXPORTS ARE LIMITED TO LESS THAN 5% OF LOCAL PRODUCTION

Haitian mango production



Import from USA

Mangue (et goyave) — Importations des Etats-Unis											
tonnes	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Total	239 051	240 278	266 280	282 360	281 658	267 017	298 088	303 562	305 958	295 653	332 095
Mexique	166 767	156 548	164 193	173 630	174 799	159 550	181 163	185 279	182 754	186 807	221 945
Pérou	12 297	15 553	20 515	20 582	30 334	29 854	33 614	29 193	38 323	17 316	32 175
Equateur	20 428	19 797	21 602	27 350	25 036	24 083	31 070	31 250	24 682	35 304	25 650
Brésil	16 984	26 937	36 040	39 034	27 187	26 144	23 088	24 679	25 774	23 193	24 407
Guatemala	8 284	10 314	9 550	8 259	8 775	9 317	9 131	12 881	14 919	14 706	12 679
Haïti	10 159	5 878	8 376	6 070	8 065	9 391	10 266	8 681	8 274	9 014	6 502
Philippines	151	514	1 315	2 166	2 877	3 620	2 974	3 545	3 268	2 996	2 815
Autres	3 981	4 738	4 690	5 270	4 585	5 061	6 782	8 053	7 964	6 318	5 922

Source : douanes US (code 080450)

Mango pests & diseases in Haiti

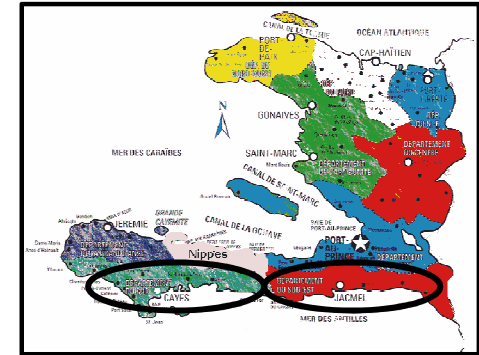


Objectives of the study of the bioecology of tephritid fruit flies harmful to mango in Haiti

- Determine the host plant range of two species of *Anastrepha* (*A. obliqua* and *A. suspensa*) and their phenology;
- Assess the relative abundance of both fly species on the main host fruits;
- Determine the population fluctuations of both species and factors, biotic and abiotic, that influence them;
- Identify essential floral or extra-floral resources for fruit flies and their natural enemies provided by wild and cultivated plants inside and around mango plantations

Methodology

- Study conducted in two important mango production areas:
 - Southeast (Jacmel, Cayes-Jacmel, Marigot)
 - South (Cayes, Camperrin)
- Survey with farmers and customers
- Regular sampling of punctured fruits from potential host plants and incubation in the laboratory
- Identification of emerging fruit fly and parasitoid adults



Methodology (contd.)

- Monitoring of seasonal fluctuations of fruit flies populations with traps
- Exposition of of *A. obliqua* pupae in the soil, every two months, to determine the rate of predation, especially by ants and other predators
- Determination of the diversity and abundance of flowering plants and fruit trees, botanic classification and phenological calendar of host-plants
- Monthly determination of the importance of the various natural enemies during the fruiting period on quadrates located inside and outside mango crops

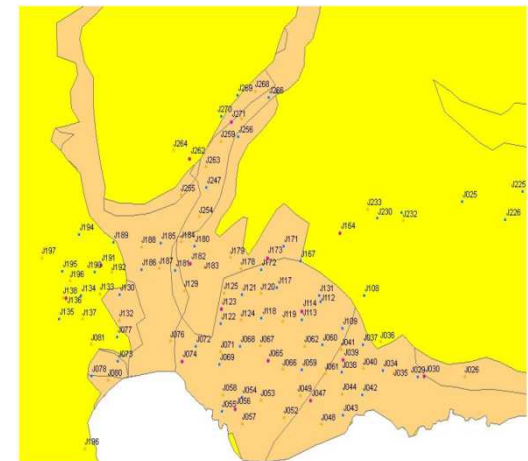
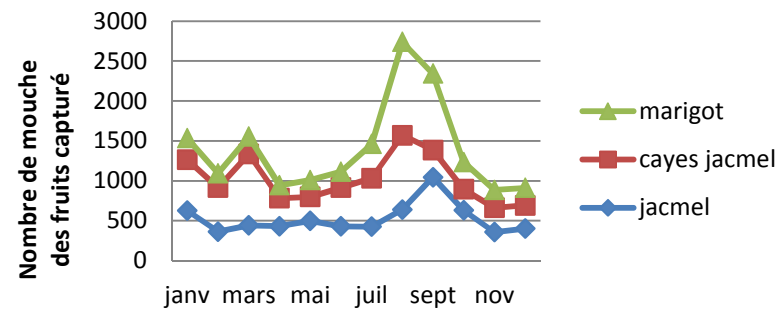


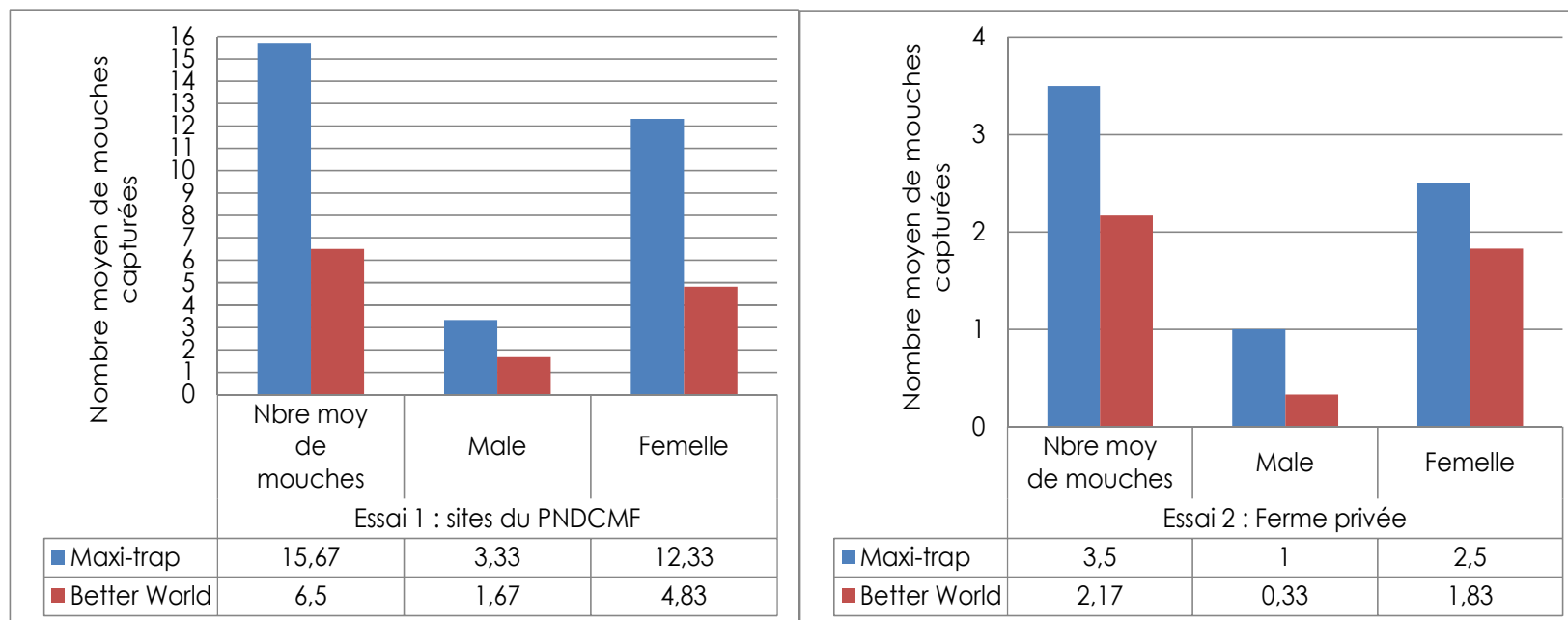
Fig 3. Dispositif de piégeage dans le département du Sud'Est



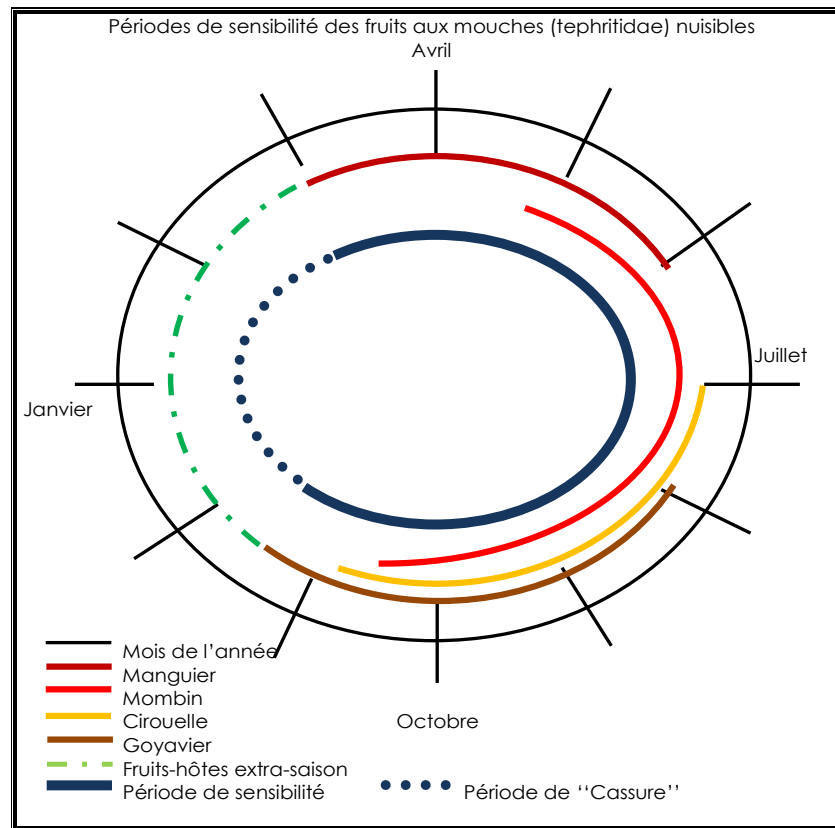
Preliminary results



Preliminary results



Period of susceptibility to fruit fly attacks of different host plants

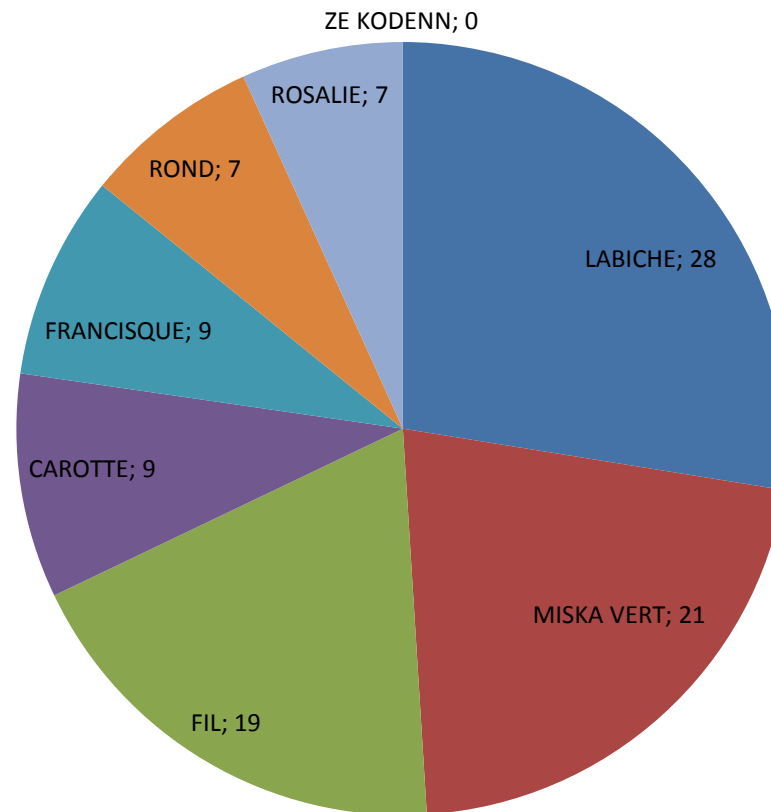


Papaya case



<http://www.recettes-cuisine-afrique.info/?Papaye,284>

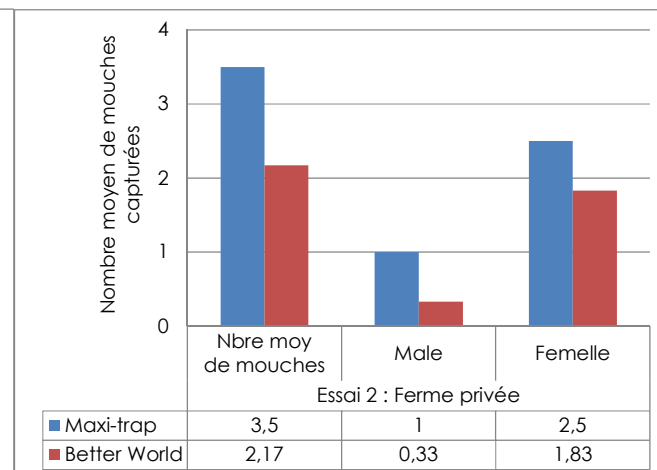
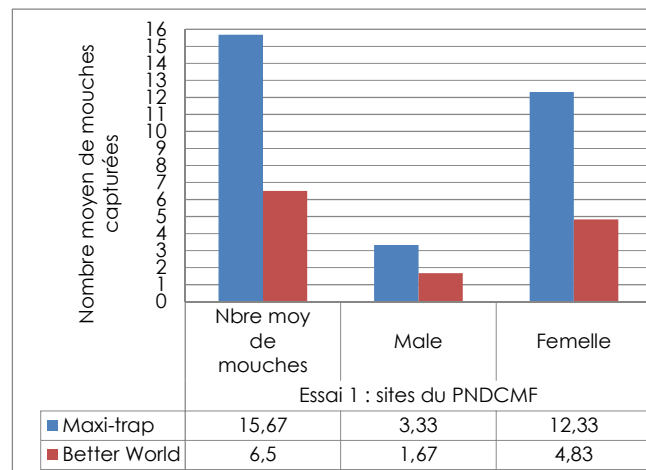
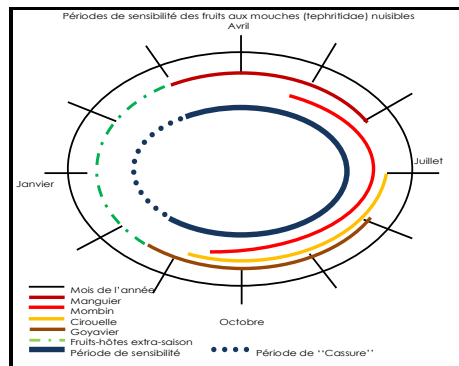
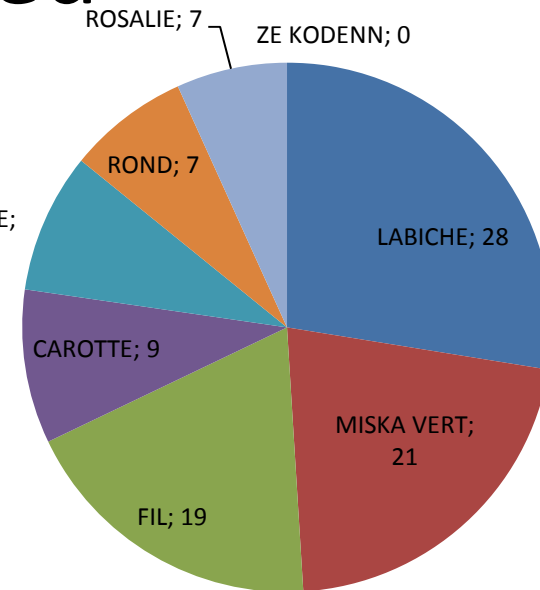
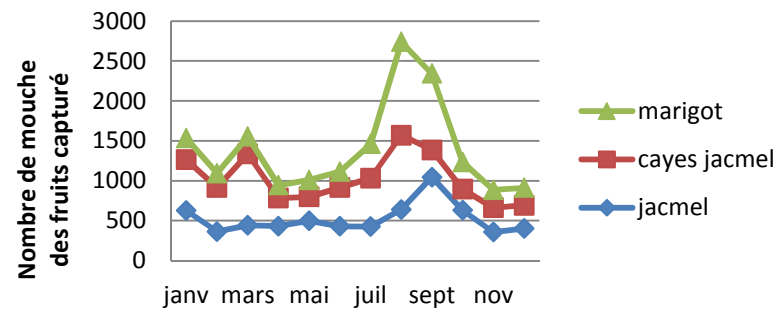
Infestation rate and relative sensitivity to fruit fly attacks of alternate host plant species and mango varieties



Results expected



FRANCISQUE;
9

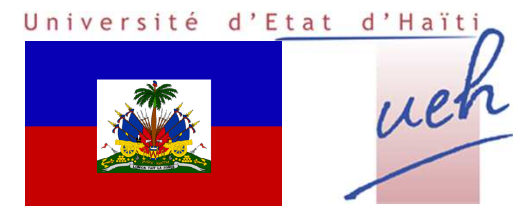


Perspectives

- List of fruit fly (biology, fluctuation and distribution),
- Phenology and period sensitivity of different hosts plant,
- Relative susceptibility of varieties of mango
- Confirmation the presence of parasitoids of mangoes fruit fly.

With the collaboration

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THANK YOU FOR ATTENTION!!!